Comparison of Communicative and Linguistic Difficulties between ASD and ADHD

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INTRODUCCIÓN

Language difficulties and communication difficulties are very typical in various neurodevelopmental disorders. Two of the mentioned disorders in DSM-5, (APA, 2013): Attention Deficit Hyperactivity Disorder (ADHD) and Autism Spectrum Disorder (ASD) can share some difficulties, and both can even affect the same person.

ASD is characterised by social communication deficits, and it requires the presence of patterns of behaviour, restrictive or repetitive interests and activities. ADHD is characterised by problematic inattention levels, disorganisation and/or hyperactivity-impulsivity (APA, 2013).

For some decades now, there have been published different studies that have shown cormobidity of ASD and ADHD. Between 22 and 83% of the children diagnosed with ASD have also some ADHD characteristic symptoms like inattention or hyperactivity, which are not relevant for ASD. Similarly, between 20 and 65% of the children diagnosed with ADHD have some ASD symptoms that are not required for their diagnosis (Salley, Gabrielli, Smith & Braun, 2016).

Both disorders show social communication deficits and interpersonal interaction deficits, that is, both disorders have language pragmatics deficits (Salley, Gabrielli, Smith & Braun, 2016). Social difficulties and communicative and linguistic difficulties are the main symptoms for ASD diagnosis. Nevertheless it is not specified in ADHD diagnosis, most of ADHD affected children have also problems in communicative skills if we compare them to Typical Development (TD) group, even if in the majority of the cases there are not structural language difficulties (Väisänen, Loukusa, Moilanen & Yliherva, 2014).

Besides these usual communicative difficulties, children with autism can reveal problems in all linguistic areas (Tager-Flusberg, 2006), specially when they use the language in social situations (pragmatic language).

Therefore, both disorders can present difficulties in communication and also difficulties in the language use, to interaction or in language pragmatics.

The general objective of this work is to register the differences from both groups with a communication questionnaire (CCC2- Bishop, 2001) and to make a comparison with a control group too. Therefore, it is hypothesised:

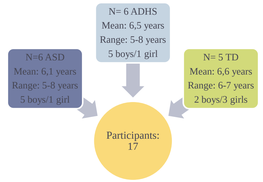
1. – Considering that the questionnaire was designed to diagnose communication disorders and autism, it is supposed that the ASD group will obtain worse punctuations than the TD group.

2. – It is thought that punctuations between the TD group and the ADHD group will be similar in every dimension, except in the Pragmatic scale. It is thought that the ADHD group will have a worse punctuation.

3. – For the same reason, it is expected to found significant differences between both affected groups, except in some Pragmatic subscales of the questionnaire.

METHOD

Participants



All the participants have Spanish as mother tongue and they are able to communicate by using oral language.
They haven't got any organic difficulties or any cormobidity with another neurodevelopmental disorder.

Material

It has been used the Spanish translation of the Children's Communication Checklist Second Edition (CCC-2) questionnaire developed by Bishop D.V.M. (2003).
The questionnaire is made for children between 4 and 16 years old. It is designed to identify the problems in communication including the deficiency in pragmatic language.
It consists of 70 items grouped into 10 scales:
•**Language structure**: Speech, Syntax, Semantics and Coherence
•**Pragmatic language**: Inappropriate initiation, Stereotyped language, Use of context and Non-verbal communication.
•**Behaviours that are usually impaired in cases of autism spectrum disorder:** Social relations and Interests.
The items are classified into a scale from 0 to 3. Being 0=the behaviour is observed once a week and 3= the behaviour is observed several times (more than twice) a day (or always).

Procedure

The questionnaires were answered by some professional of the neurodevelopmental centre. These professionals have intervened and have also had direct contact with children at least, for the last 5 months.
It has been used the SPSS 23 program to analyse the data. The Kruskal-Wallis no parametric analysis has been conducted by comparing the three groups and comparing them in pairs. The means have been used for the figures, for both at the 10 CCC-2 areas (Figure 1) and the grouping (Figure 2).

RESULTS

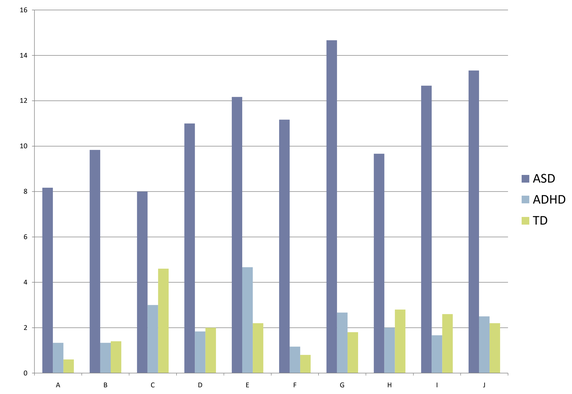


Figure 1: The mean of the scores corresponding to scales in CCC-2.

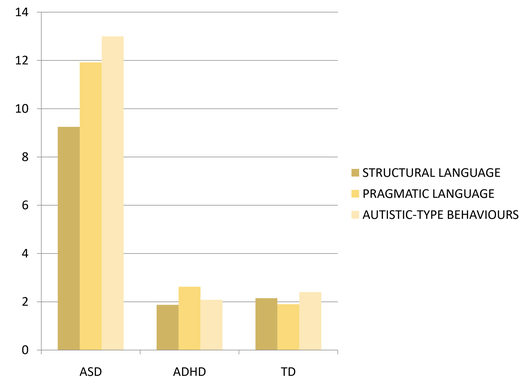


Figure2: The mean of the results from the three categories in which are classified the 10 scales of CCC-2.

The data obtained (they can be observed in Table 1 and in Graphic 1 and 2) show very different values between the punctuations of the ASD group and the TD group.
All the values have a significance lower than 0.01.
The ADHD and the TD punctuations are very similar so their values are not significant. However, if we compare the result of the punctuations of both disorders, ADHD and ASD, the result is very different so, in this case, the values are very significant.
Inappropriate initiation is the only one subscale that shows closer values (although the significant differences are lower than 0.05).
The effect size in the comparison between the affected groups and the TD group is also consistent with the results. There are fluctuating values in the comparison between the ADHD group and the ASD group, from 0.74 in coherence to 0.05 in syntax. On the other hand, the comparison between ASD group and TD group shows that the fluctuating values go from 6.63 in the use on context to 1.65 in semantics.

Table 2: Comparison of the date obtained from the three population.

	ASD	ADHD	TD	Chi2			
	Average range			ASD/ADHD/ TD	ASD/TD	ADHD/TD	ASD/ADHD
Composite estructural language	14.50	5.5	6.6	11.15(**)	7.53(**)	0.3(n.s)	8.33(**)
Pragmatic language	14.5	6.5	5.4	11.14(**)	7.5(**)	0.3(n.s)	8.33(**)
Autistic-Type behaviours	14.5	6.42	5.5	11.22(**)	7.5(**)	0.2(n.s)	8.48(**)

(**) significant values< 0.01; (*)< 0.05; (n.s) no significant)

LIMITATIONS

The most important limitation is the small number of participants. In a work like this one, it is difficult to collect wider and better data.
Another limitation was that the assessors are interventionist professionals or education professionals and sometimes, it could be difficult to them to answer the pragmatic questions that are related to very quotidian contexts or even familiar contexts.

DISCUSSION

This work was made to verify how the communicative difficulties that are considered main difficulties in the ASD patients, which are considered no required difficulties in the ADHD group, could be compared using to achieve it a questionnaire answered by therapists.

Emphasizing that there was a very small number of participants in this work and this fact makes very difficult to draw conclusions to the population, we must declare that, according to the results, the ASD group has worse punctuations than the ADHD group in CCC-2 questionnaire. Therefore, as Bishop (2001) notes, the questionnaire diagnoses autism and, according to the data found, it won't be suitable to diagnose the communicative difficulties that literature attributes to ADHD.

These data will be coherent in hypothesis 1 and, partially, in hypothesis 2 of this work. These data won't coincide with the limited literature that has used samples with ADHD to evaluate communication (Crespo et al., 2016) where all the punctuations are equalised in the TD group and the ADHD group in every dimension, except in the Pragmatic scale. However, in this work, there haven't been found significant differences in this scale. This could be due to the assessors (in Crespo et al. study, the assessors were the parents) or due to the small number of participants. However, maintaining the forward premise, we must admit that the equality of the results is much similar in the Structural Language subscale and in the Autistic-Type behaviours, whereas in the Pragmatic subscale (in particular in Inappropriate Initiation), the ADHD group reaches relevant punctuations, even if they are very distant from those of the ASD group.

The hypothesis 3 is also partially achieved because of the absence of similarities in the results of the Pragmatic subscale of both groups, ADHD and ASD.

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